VIKHERT, Mikhail Mikhaylovich; DOBROGAYEV, Rostislav Pavlovich; LYAKHOV,
Mikhail Ivanovich; PAVLOV, Aleksey Vasil'yevich; SOLOV'YEV, Mikhail
Petrovich, professor; STEPANOV, Yuriy Aleksandrovich; SUVOROV, Viktor
Grigor'yevich; KHANIN, N.S., kandidat tekhnicheskikh nauk, retsenzent;
CHISTOZVONOV, S.B., retsenzent; MECHAYEV, B.K., doktor tekhnicheskikh
nauk, retsenzent; SHUBOVICH, S.I., kandidat tekhnicheskikh nauk,
retsenzent; YEGORKINA, L.I., inzhener, redaktor; SOKOLOVA, T.F.,
tekhnicheskiy redaktor

[Construction and design of truck and tractor engines] Konstruktsiia
i raschet avtotraktornykh dvigatelei. Pod red. IU.A.Stepanova.
Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1957. 604 p.
(MIRA 10:10)

1. Gosudarstvennyy soyuznyy ordena Trudovogo Krasnogo Znameni
nauchno-issledovatel'skiy avtomobil'nyy i avtomotornyy institut
(for Khanin, Chistozvonov). 2. Kafedra dvigateley vnytrennego
sgoraniya Tomskogo politekhnicheskogo instituta (for Mechayev,
Shubovich)
        (Motortrucks--Engines)   (Tractors--Engines)

SOV-113-58-9-18/19

AUTHOR: Tokarev, G.G., Candidate of Technical Sciences

TITLE: Criticism and Bibliography (Kritika i bibliografiya)

PERIODICAL: Avtomobil'naya promyshlennost', 1958, Nr 9, p 48 (USSR)

ABSTRACT: This is a review of the book "Konstruktsiya i raschet avto-
              traktornykh dvigateley" (Designing and Calculating Tractor
              Engines) by M.M. Vikhert, R.P. Dobrogayev, N.I. Lyakhov,
              A.V. Pavlov, M.P. Solov'yev, Yu.A. Stepanov, V.G. Suvorov,
              published under the editorship of Professor Yu.A. Stepanov
              by Mashgiz 1957.

ASSOCIATION: NIIAT (NIIAT)

              1. Automobile industry--USSR   2. Combustion engines--Design

Card 1/1

SOLOV'YEV, M.S.

Use of paninfrachromatic films in aerial surveying. Trudy
TSNIIGAIK no.142:165-171 '61.   (MIRA 15:8)
          (Aerial photogrammetry) (Photography--Films)

SAYDOV, Pavel Ivanovich, prof.; SOLOV'YEV, M.V.; ODINTSOV, A.A.;
KELAREV, L.A., tekhn. red.

[Practical work in a gyroscopic laborqtory; textbook for
laboratory work] Prakticheskie zaniatiia v giroskopicheskoi
laboratorii; posobie k laboratornym rabotam. Pod red. P.I.
Saidova. Leningrad, Leningr. elektrotekhn. in-t im. V.I.Ul'-
ianova (Lenina). 1962. 121 p.   (MIRA 15:5)
                    (Gyroscope)

DUL'NEVA , V.B.; SOLOVYOV, M.V.

Basic results of work in introducing and breeding grapes in the Kiev area. Trudy Bot. sada AN URSR 1:108-127 '49.   (MLRA 10:8)
(Kiev Province--Viticulture)

FD-1210

USSR/Geophysics - Soil study of kolkhozes

Card 1/1   Pub. 129-13/19

Author   : Solov'yev, M. V.

Title   : Agricultural productive utilization of pedological (soil) investiga-
               tions of kolkhozes in Khimkinskiy Rayon, Moskovskaya Oblast

Periodical : Vest. Mos. un., Ser. fizikomat. i yest. nauk, 9, No 5, 127-132,
               Aug 54

Abstract   : In 1953 the Chair of Soil Science, in the Biologico-Pedological
               Faculty of Moscow University, investigated five large-scale kolkhozes
               near Khimki, under the guidance of P. N. Chizhikov, senior scientific
               associate of the Chair, with the ultimate purpose of helping the
               kolkhozes raise the fertility of their soils and consequently their
               yield, in accordance with the general resolutions of the 19th Commu-
               nist Party Congress. The author demonstrates how pulverized chemical
               fertilizers (e.g. superphosphates) and rotation increase crop yield.
               Twelve references, all USSR (e.g. N. S. Rozanov, Ispol'zovaniye torfa
               v sel'skom khozyaystve [Use of peat in agriculture], Sel'khozgiz,
               1953).

Institution : Chair of Soil Science

Submitted   : January 3, 1954

BOLYSHEV, N.N.; SOLOV'YEV, M.V,

Methods of investigating soils of state farms established on virgin
lands. Pochvovedenie no.4:51-60 Ap '58.   (MIRA 11:5)

1.Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
                        (Soil surveys)

PAVLOV, Boris Vasil'yevich; MORZHAKOV, S.P., kand. tekhn.nauk,
retsenzent; SOLOV'YEV, M.V., kand. tekhn.nauk, red.;
CHFAS, M.A., red.izd-va; PETERSON, M.M., tekhn. red.

[Vertical balancing machines] Vertikal'nye balansirovochnye
stanki. Moskva, Mashgiz, 1963. 100 p.   (MIRA 16:4)
                (Balancing of machinery)

SOLOV'YEV, M.V.

9273
INTERACTION OF COSMIC RAY PROTONS WITH LIGHT
NUCLEI ACCORDING TO MEASUREMENTS TAKEN WITH
WILSON CHAMBER AT 9 KM ALTITUDE. L. T. Baradzei,
V. I. Rukhov, Yu. A. Smorodin, M. V. Solov'ev, B. V.
Tolkachev, and Z. I. Tulinova. (Lebedev Inst. of Physics).
Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. 19, 502-7 (1955) Sept.-
Oct. (in Russian)

The investigation of cosmic proton interaction with
nuclei at high altitudes was facilitated by the high intensity
of protons and negligible content of π mesons in the nuclear
active component. The measurements of proton interactions
with beryllium nuclei Be⁹ were made with a Wilson chamber
of 0.230 mm and illumination depth of 500 mm. The
chamber was working in a magnetic field with strength of
7.5 Oe. A beryllium plate of 5.3 g/cm² was placed in the
chamber for measuring the space angles between the
shower particles and the primary particle traces over the
plate. The measurement error for the space angles was
within 1°. The particle angular distribution in the absence
and the data on impulses are given. (R. V. J.)

PMLyt

BARADZEY, L.T.; RUBTSOV, V.I.; SMORODIN, Yu.A.; SOLOV'YEV, M.V.; TOLKACHEV, B.V.; TULINOVA, Z.I.

Formation of electron-photon components in the reaction between cosmic-ray particles with energies exceeding 10^{11} ev and beryllium nuclei [with summary in English]. Zhur. eksp. i teor. fiz. 33 no.1: 17-20 Jl '57.

(MLRA 10:9)

1. Fizicheskiy institut im. P.N. Lebedeva Akademii nauk SSSR.
(Cosmic rays)   (Nuclear reactions)

56-7-3/66

AUTHOR BARADZEY, L.T., RUBTSOV, V.I., SMORODIN, Yu.A., SOLOV'IEV, M.V.,
TOCHKAYEV, B.V., TULINOVA, Z.I.

TITLE On the Formation of the Electron-Photon-Component in the Interaction
between Cosmic Ray Particles with Energies Exceeding to 10^{11} eV and
Beryllium Nuclei
(Ob obrazovanii elektronno-fotonnoy komponenty pri vzaimodeystvii
chastits kosmicheskikh luchey s energiyey vyshe 10^{11} eV s yadrami
berilliya. Russian)

PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol 33, Nr 7, pp 17 - 2o
(U.S.S.R.)

ABSTRACT The present paper describes the results of experiments carried out with
a WILSON chamber which was fitted in a magnetic field. This WILSON cloud
chamber operated for 52 hours in a height of 9oo m. Above this cloud
chamber a beryllium block was located, in the interior of which a lead
plate was fitted. On the occasion of the production of electron-photon
showers in the absorbers the cloud chamber was photographed. 149o pho-
tographs were obtained and on 86 of them electronic-nuclear showers
from the beryllium block were found recorded. Among them 5 electronic-
-nuclear showers were found in which more than 1o parts were observed.
4 photographs of interactions are attached. The most important data on
the showers investigated here are shown in a table. This table imparts

Card 1/3

56-7-3/66

On the Formation of the Electron-Photon-Component in the Interaction between Cosmic Ray Particles with Energies Exceeding to 10^{11} eV and Beryllium Nuclei

various informations as e.g. on the number of particles observed above the lead plate, on the number of particles identified as electrons, on the number of particles which have passed through the lead plate without cascade multiplication, on the maximum number of penetrating particles, on the point where the showers were formed, on the angle $\Theta_{1/2}$ within which half of the particles is radiated, on the lower limit of the total energy of the penetrating particles, on the number of electrons below the lead plate with more than 6 and 3o eV, on the total energy of those electrons which were obtained by measuring the electron momenta below the plate, on the lower limit of the energy of the electron-photon components, on the energy of the electron-photon components produced on the occasion of the interaction, on the ratio between the energy of the electron-photon components and the energy of the impinging particle, and on the number of the secondary interactions observed in the lead plate. The data mentioned in this table show the following: On the occasion of the interaction of charged cosmic ray particles (10^{11} - 10^{12} eV) with light nuclei the energy transferred to the electron-photon component is subjected to important fluctuations and can drop down to some tenth of a percent.

Card 2/3   (With 4 illustrations and 1 table).

AUTHORS:
Baradzey, L. T., Rubtsov V.I., Smorodin Yu.A.   20-4+14/60
Solov'yev M.V., Tolkachev B.V., Tulinova S.I.,

TITLE:
The Interaction of the Protons of Cosmic Rays With an Energy of About 10 BeV With Lead-Nuclei (Vzaimodeystvije protonov kosmich-enkikh luchey s energiyey okolo 1010 eV s yadrami svintsa).

PERIODICAL:
Doklady Akad. Nauk SSSR, 1957, Vol. 115, Nr 4, pp. 685-688 (USSR)

ABSTRACT:
These investigations were performed in an altitude of 9000 m by means of a cloud chamber in a magnetic field with 9200 oersteds. The scheme for the control mechanism of the chamber is illustrat-ed by a sketch. In order to exclude the interactions caused by pions, the nuclear showers caused in the lead-plate by one indi-vidual charged particle were investigated. Altogether 38 of those case were selected, the characteristic photographs of the showers are given. The maximum measured impulse of the charged particles was 3 BeV/c. A table illustrates the distribution of the showers on the number n of particles in the shower. The average number of the particles per interaction is $3,9 \pm 0,3$. The experimental data yield some indications concerning the chief components of the ele-ctron-nucleus showers. A diagram illustrates the data of the en-ergy distribution of the electrons. When this spectrum is descri-bed by a law of the type $dN/dE \sim E^{-\gamma}$, the exponent is variable. $\gamma \sim 1$ in the case of small energies and $\gamma \sim 2,5$ in the case of energies of

Card 1/2

es, 1 table and 5 references, 3 of which are Soviet.

ASSOCIATION:
Moscow State University imeni M.V.Lomonosov.Physical Institute AN USSR imeni P.N.Lebedev (Moskovskiy gos. universitet imeni M.V. Lomonosova,Fizicheskiy institut imeni P.N.Lebedeva AN SSSR).

PRESENTED: March 5, 1957 by D.V.Skobel'tsyn, Academician
SUBMITTED: December 21, 1956
AVAILABLE: Library of Congress.

Card 2/2

GLOTIN, M. V.

ABSORPTION OF NUCLEONS WITH ENERGIES FROM 10^{11} TO 10^{13} ev IN AIR
A.T. Baradze, V.I. Kuotsov, Yu.A. Smorodin, M.V. Solovyev, B.V. Tolkachev

1.   Nucleons in the energy range from 10^{11} to 10^{13} ev were studied at altitudes corresponding to pressures of 300 gms/cm^2.

The instruments used made it impossible to record ionization bursts due to the multiplication in lead of the electron-photon component generated by the interaction of high energy particles with carbon nuclei. 2 trays of cylindircal ionization chambers were placed under 4 and 8 rad.units of lead, respectively. The magnitude of the ionization burst in each chamber was recorded. Hodoscope counter set at distances from 0 to 10 m enabled us to detect air snowers.

Report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959

Solov'ev, M.V.

24.6700
3.2410 (2705, 2805, 1559)

31531
S/627/60/002/000/013/027
D299/D304

AUTHORS: Baradzey, L. T., Rubtsov, V. I., Smorodin, Yu. A., Solov'yev, M. V. and Tolkachev, B. V.

TITLE: Absorption of high-energy nucleons in the atmosphere

SOURCE: International Conference on Cosmic Radiation. Moscow, 1959. Trudy. v. 2. Shirokiye atmosfernyye livni i kaskadnyye protsessy, 152-158

TEXT: The apparatus which was installed in an aircraft permitted studying large ionization bursts at various depths in the atmosphere: $p = 200$ gm/cm^2, $p = 310$ gm/cm^2, $p = 1020$ gm/cm^2. The apparatus incorporated ionization chambers and hodoscoped counters. The energy spectrum of the electron-photon component was obtained, for energies of $2 \cdot 10^{10}$ to $2 \cdot 10^{12}$ ev. It was found that in most cases the energy of the electron-photon component collimates well around the shower axis which lies in the area of the ionization chambers. A table shows the mean ionization-distribution in the chambers. The fast drop in energy density with distance from the shower axis

Card 1/5

Absorption of high-energy ...

shows that the recorded events are cascade showers of primary par-
ticles, namely gamma-quanta showers formed by the decay of π^0-me-
sons. The differential spectra of the electron-photon component
show that for energies of $2 \cdot 10^{10}$ to $2 \cdot 10^{12}$ ev. the spectrum can be
approximated by a power law with exponent $\tau = 2.75 \pm 0.07$ for all
the altitudes under consideration. The electron energy spectrum for
the one-dimensional problem was calculated in the approximation A
which is sufficient for the small distances from the shower axis
involved. The exponential change in atmospheric density was taken
into account by means of Greisen's approximate method (Ref. 1: Fi-
zika kosmicheskikh luchey (translation into Russian of "Progress in
Cosmic Ray Physics", edited by J. G. Wilson), v. 3, chapt. 1, IL,
1958). The differential energy spectrum of the electron-photon com-
ponent is

$$\frac{dN}{dE} = AE^{-\varepsilon} \int_0^\infty \alpha(t,E)^{\varepsilon-1} \left(1 - \frac{\partial \ln \alpha}{\partial \ln E}\right) e^{\frac{t}{\mu}} \, dt = AE^{-\varepsilon} C(E, P) \qquad (2)$$

Card 2/5

Absorption of high-energy ...

31531
S/627/60/002/000/013/027
D299/D304

where C is the thickness of the effective layer for photon genera-
tion. Thereupon, the photon generation spectrum is obtained. The
absorption length of the component which generates photons of ener-
gy 10^{11} to 10^{12} ev. is 120 gm/cm^2. Further, the energy of the nu-
clearactive particles is estimated which generate the photons. It
was found that at pressures of 200 and 310 gm/cm^2, the electron
density drops in accordance with the law $r^{-0.7 \pm 0.1}$, up to dis-
tances of 10 m from the ionization chambers. This table shows also
the values of the energy of nuclearactive particles. It was es-
tablished that the photons are generated by nuclearactive particles,
whose energy is a hundredfold the enery of the photons. The study
of electron-photon cascades at high altitudes, where the effective
recording-layer is small, permits investigating the generation of
the electron-photon component by the interaction of nuclearactive
particles with energies of $10^{13} - 10^{14}$ ev., with light nuclei. The
absolute intensity of the nuclearactive component was obtained on
the assumption that on interacting with the carbon nucleus, the

Card 3/5

31531
S/627/60/002/000/013/027
D299/D304

Absorption of high-enery ...

high-energy nucleon transmits 10% of its energy to the π^0-mesons. The conclusion was reached that the absorption length of nuclearactive particles with energies of 10^{11} to 10^{13} ev. does not change, remaining close to 120 gm/cm^2. In this energy range, the spectrum of the primary cosmic particles is

$$N(>E) = 900\left(\frac{E}{10^{12}}\right)^{-1,5} \frac{particle}{m^2 \ hour \ sterad} \tag{4}$$

The relation between the differential spectrum of the nuclearactive component (expressed by $E_0^{-\gamma}$), the differential spectrum of the generated π-mesons ($E^{-\varepsilon}$), and the energy of the π-mesons (following the law $E_\pi = const \cdot E_0^\beta$), yields the formula

$$\beta = \frac{\gamma - 2}{\varepsilon - 2} \tag{5}$$

Card 4/5

31531
S/627/60/002/000/013/027
Absorption of high-energy ...   D299/D304

From the experimental data it follows that $\beta \sim 0.5$; with a correction
for the small number of high-energy particles, one obtains $\beta \sim 1$.
There are 4 figures, 4 tables and 7 references: 4 Soviet-bloc and
3 non-Soviet-bloc (including 1 translation). The references to the
English-language publications read as follows: M. F. Kaplon, J. Z.
Klose, D. M. Ritson, W. O. Walker, Phys. Rev., 91, 1573, 1953; K.
Kamata, J. Nishimura, Suppl. of Progr. Theor. Phys., no. 6, 93,
1958.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR(Phy-
              sics Institute im. P. N. Lebedev AS USSR); Nauchno-
              issledovatel'skiy institut yadernoy fiziki MGU (Sci-
              entific Research Institute of Nuclear Physics Moscow
              State University)

Card 5/5

21(8)   SOV/56-36-6-1/66
AUTHORS: Baradzey, L. T., Solov'yev, M. V., Tulinova, Z. I., Filatova, L. I.

TITLE: Momentum Spectrum of Particles of the Hard Component of Cosmic
                Rays at an Altitude of 9000 m (Spektr impul'sov chastits zhest-
                koy komponenty kosmicheskikh luchey na vysote 9000 m)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
                Vol 36, Nr 6, pp 1617 - 1620 (USSR)

ABSTRACT: The authors report on the momentum spectra (for momenta between
                $0.3 \cdot 10^9$ and $6 \cdot 10^9$ ev/c) recorded by them by means of a cloud
                chamber and a quintuple coincidence circuit obtained at an
                altitude of 9 km. In the introduction they describe the apparatus
                (Fig 1) and give a topographical description of the magnetic
                field (Fig 2) (average field strength 9090 Oe). Within 14 hours
                700 photographs were taken, on which 445 curved traces having
                a length of 15-17 cm were measured by means of the optical com-
                pensator IG-22. For setting up the spectrum the traces were used
                which form an angle of $< 4^\circ$ with the chamber plane. Figure 3
                shows a momentum spectrum obtained in this manner, composed from
                the data of two series of measurements. The absolute intensity
Card 1/3   of this spectrum corresponded to a total intensity of the hard

Momentum Spectrum of Particles of the Hard Component   SOV/56-36-6-1/66
of Cosmic Rays at an Altitude of 9000 m

component of 3.0 ± 0.15 particles $cm^{-2} min^{-1} steradian^{-1}$, which is
in good agreement with the results obtained by Vernov et al
(Ref 1). The spectral curve within the range of $(2-6).10^9$ ev/c
can easily be represented by an exponential function with the
exponent. 2.8 ± 0.5. Figure 5 shows the measured (and also the
calculated) spectral curves for negative particles, which were
identified as muons, within a larger momentum range. A comparison
with the results with μ^- -spectra at sea level (Refs 5,6) leads
to the conclusion that within the momentum interval of

$5.10^8 - 3.10^9$ ev/c about 60% of all muons recorded at sea level
are produced at altitudes of > 9 km. Figure 6 shows the spectrum
of the positive particles; in the case of momenta

$< 1.8.10^8$ ev/c muons are concerned. The ratio between positive
and negative muons within the range $(3-7)10^8$ ev/c is 1.7 ± 0.4.
Within the momentum range $> 7.8.10^8$ ev/c the positive particles
may be both μ^+ mesons and protons. The ratio $k = \mu^+/\mu^-$ depends
only slightly on momentum and altitude and is between 1.2 and
1.3. For momenta $> 10^9$ ev/c, $k = 1.25$. Figure 6 shows the positive

Card 2/3   spectrum at an altitude of 9 km, viz. the muon- and the proton

Momentum Spectrum of Particles of the Hard Component   SOV/56-36-6-1/66
of Cosmic Rays at an Altitude of 9000 m

curve on the basis of data obtained from two series. Within
the range of $(1 \div 5) \cdot 10^9$ ev/c it is found that the protons amount
to $(50 \pm 10)\%$ of the total number of penetrating particles within
this range. Also the spectral curves of the positive particles
within the range of $(2 \div 5) \cdot 10^9$ ev/c may be approximated by means
of exponential curves, with an exponent which corresponds to
the negative particle within the error limits. The authors
thank Yu. A. Smorodin for supervising the work performed
and for discussing the results obtained. There are 6 figures and
7 references, 1 of which is Soviet.

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta
(Institute of Nuclear Physics of Moscow State University)

SUBMITTED: December 12, 1958

Card 3/3

BARADZEY, L. T., RUBTSOV, V. I., SOLOVYEV, M. V. and TOLKACHEV, B. V.

"Production of the Electron-Photon Component in the Interaction of Particles of Energies 10^{12} to 10^{14} ev with Light Nuclei in Atmosphere"

Report presented at the International Conference on Cosmic Rays and Earth Storm, 4-15 Sep 61, Kyoto, Japan.

P. N. Lebedev Physical Institute of the Academy of Science of the USSR and Nuclear Physics Research Institute of the Moscow University, USSR

I

Z, 2410 (2205, 2705, 2805)

AUTHORS: Baradzey, L. T., Rubtsov, V. I., Smorodin, Yu. A.,
Solov'yev, M. V., and Tolkachev, B. V.

TITLE: Formation of an electron-photon component in the interaction
of particles of 10^{12}-10^{14} ev with light nuclei in the
atmosphere

TEXT: With the aid of ionization chambers with an area of 0.2 m^2, the
authors obtained data on: (1) the energy spectra of electron-photon
avalanches falling upon the apparatus from the air at pressures of 200, 300,
and 1050 g/cm^2; (2) the energy spectra of cascades induced by nuclear-
active particles in the graphite block above the apparatus at pressures of
200 and 300 g/cm^2; (3) the air showers accompanying the particles. The
particle densities in the showers were determined immediately at the

Card 1/3

apparatus and 10 m away from it. The major part of photons is produced by particles of an energy exceeding the photon energy by one order of magnitude. The photon spectra at high energies (above $2-4 \cdot 10^{12}$ ev) differ considerably from those obtained at low energies. This is probably due to increased energy dissipation by new secondary radiation processes. The absorption path of nuclear-active particles in the atmosphere can be determined from the absorption path of the component producing the electromagnetic cascade in the light substance, or from the absorption path of the component producing high-energy photons in the atmosphere. The coefficient of inelasticity of nucleon interaction remains unchanged over a wide range of energies. The intensity of primary cosmic radiation in the energy range $2 \cdot 10^{11} - 2 \cdot 10^{13}$ ev is

$$N(> E) = (600 \pm 150)(E/10^{12})^{-1.7 \pm 0.15} \; hr^{-1} \, m^{-2} sterad^{-1}.$$

This spectrum is consistent with results of more accurate calculations. There are 9 figures and 3 tables.

Card 2/3

Formation of an electron-photon...

S/048/62/026/005/004/022
B108/B104

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Physics Institute imeni P. N. Lebedev of the Academy of
Sciences USSR); Nauchno-issledovatel'skiy institut yadernoy
fiziki Moskovskogo gos. universiteta im. M. V. Lomonosova
(Scientific Research Institute of Nuclear Physics of the
Moscow State University imeni M. V. Lomonosov)

Card 3/3

MADZEY, V. .. ROBTSOV, Yu. A. SMORODIN, M. V. SOLOVYEV

·tion of High Energy Nucleions in the Atmosphere and Production of Meson·

·ort submitted for the 8th Intl. Conf. on Cosmic Rays (IUPAP), Jaipur, India,
2-14 Dec 1963

L 16016-65   EWT(m)   DIAAP/AFWL/SSD
ACCESSION NR: AP4049588   S/0048/64/028/011/1807/1811

AUTHOR: Baradzey, L. T.; Rubtsov, V. I.; Smorodin, Yu. A.;
Solov'yev, M. V.   B

TITLE: Passage of high-energy nucleons through the atmosphere and
the formation of mesons. [Report presented at the Vsesoyuznoye
soveshchaniye po fizike kosmicheskikh luchey (All-Union Conference
on Cosmic Rays), held in Moscow from 4 to 10 October 1963]

SOURCE: AN SSSR. Izv. Seriya fizicheskaya, v. 28, no. 11, 1964,
1807-1811

TOPIC TAGS: primary nucleon, cascade spectrum, nuclear component,
terrestrial atmosphere, energy nuclear cascade, electron photon
component, meson, pion

ABSTRACT: The spectrum of the primary nucleons in meson generation
becomes sharper than the cascade spectra. The absorption of the ac-
tive nuclear component in the terrestrial atmosphere may be determined
by the ratio of the energy of secondary particles to the energy of the
primary component, neglecting the magnitudes of these energies. The

Card 1/3

L 16016-65
ACCESSION NR: AP4049588

2

flux of the active nuclear component in the atmosphere at a depth t may be computed by using formulas for high energies and comparing the results with spectra of the nuclear cascades. The part of the energy transferred to the electron-photon component during the nuclear interaction is $0.22^{1.7}$. This result makes it possible to assume that the generation of π^0-mesons with energies of $10^{11}-10^{13}$ ev is proportional to the energy of active nuclear particles. The formation of π^+ and π^- mesons may resemble the formation of π^0 mesons, and the probability of all generated pions is $0.26^{1.7}$. An analysis of the data obtained shows that π^0 mesons are associated with showers whose energy is 10 times that of the π^0 meson energy. Orig. art. has: 2 figures, 5 formulas, and 2 tables.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta im. M. V. Lomonosova (Scientific Research Institute of Nuclear Physics of the Moscow State University); Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics, Academy of Sciences, SSSR)

Card 2/3

L 16016-65
ACCESSION NR: AP4049588

SUBMITTED: 00   ENCL: 00   SUB CODE: ES

NO REF SOV: 012   OTHER: 012   ATD PRESS: 3142

O

Card 3/3

AUTHOR: Baradzey, L.T.; Rubtsov, V.I.; Smorodin, Yu. A.; Solov'yen, M.V.;
Tolkachev, B.V.

TITLE: Passage of high-energy nucleons through the atmosphere and the formation of
mesons

TOPIC TAGS: cascade multiplication, pion, nucleon, meson, avalanche, muon, gamma
quantum, high energy particle

ABSTRACT: An analysis is made of recently collected data on the passage of $10^{12} - 10^{14}$
ev nucleons through the atmosphere. Energies of electron-photon cascade were measured
with instruments which recorded ionization bursts resulting from an avalanche in a lead
filter. The three instruments used are described. The energy spectra of nuclear
cascades are discussed, taking into account shortening of the spectrum of primary
nucleons in the form   nucleon/hr.m^2.ster   (1)

$$N(>E) = 500(E)^{-1.7}\,[-0.15 + 2.75(E)^{-0.3} - 1.6(E)^{-4.4}]$$

where the effective fraction of energy conversion is close to 0.5 and the fraction of energy

Card 1/3

· L 24662-65

ACCESSION NR: AT4049957 O

transferred to the electronphoton component during interation with nuclei of the air Δ_{e-p} is such that

$$\int \Delta_{?,\phi}^{1,7}/(\Delta_{?,\phi})\,d\Delta_{?,\phi} = 0.08 \pm 0.02 = 0.22^{1,7}. \tag{2}$$

Data on the flux of nuclear-active cosmic-ray components at various atmosphere depths is summarized. Energy spectra of electron-photon avalanches incipient in the atmosphere and generation of γ-quanta are discussed. The formation of pions and pion fluxes in the atmosphere is treated. The fraction of energy carried by π°-mesons generated in the energy range below 10^{14} ev is expressed as

$$\int \Delta_{\pi}^{1,7}/(\Delta_{\pi_0})\,d\Delta_{\pi_0} = 0.033 \pm 0.007 = 0.14^{1,7}. \tag{3}$$

Calculation of charged pion flux indicates that the generation of mesons of different sign may be expected at energies of about 10^{11} ev. It also indicates that in the 10^{11} – 2.10^{12} ev range pions make a significant contribution to nuclear-active components of the flux. About half of the nuclear cascades of a given energy and generated in thin filters are formed in the lower third of the atmosphere by π +-mesons. Muon flux at sea level calculated from data on atmospheric generation of γ-quanta coincides with experimental values in the 10^{11} -2.10^{12} ev range, indicating that the overwhelming fraction of muons in the atmosphere results from the decay of pions. "The authors

Card 2/3

L 24662-65

ACCESSION NR: AT4049957

2

thank S.N. Vernov for his constant help, as well as R.A. Antonov for carrying out the godoscopic studies." Orig. art. has: 12 figures, 9 tables and 29 formulas.

ASSOCIATION: Fizicheskiy Institut AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 00   ENCL: 00   SUB CODE: AA

NO REF SOV: 028   OTHER: 018

Card 3/3

GORSHKOV, N.I., kand. voyenno morskikh nauk, kapitan 1-go ranga; POL'SHAKOV, P.M., dotsent, kand. voyenno morsk. nauk, kapitan 1-go ranga; SOLOV'YEV, M.V., inzh.-kapitan 2-go ranga; KOLCHIN, G.A., kapitan 3-go ranga; SEN', K.A., kapitan-leytenant

It should be improved and published anew. Mor. sbor. 48 no.12: 82-87 D '64. (MIRA 18:2)

L 7990-66   EWT(m)/EWP(w)/EPF(c)/EWP(v)/EWP(j)/T   WW/EM/RM
ACC NR: AP5026547   SOURCE CODE: UR/0286/65/000/019/0095/0095

AUTHORS: Solov'yev, M. V.; Chernenko, M. S.

ORG: none

TITLE: A method for gluing on resistance strain gauges. Class 42, No. 175298 /presented by the Enterprise of the State Committee for Defense Technology SSSR (Predpriyatiye gosudarstvennogo komiteta po oboronnoy tekhnike SSSR)/

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 95

TOPIC TAGS: strain gage, automation, measuring instrument

ABSTRACT: This Author Certificate presents a method for gluing resistance strain gauges onto a detail with the shape of a solid of revolution. To mechanize the process of fixing the strain gauges, the latter are glued onto a base the underside of which is fixed to a plate. The surface of this plate corresponds to the developed surface of the part. Scribe marks on the surface of the part indicate where the strain gauges are to be glued. The glue is applied to the part, the latter is pressed to the plate with the strain gauges and is revolved, while both the part and the plate are moved rectilinearly in relation to one another.

Card 1/2   UDC: 620.172.216

L 7990-66
ACC NR: AP5026547

SUB CODE: IE/ SUBM DATE: 08Jul63

nw
Card 2/2

SOLOV'YeV, N., inzh.

Mechanizing the assembly of hinges. Trakt. i sel'khozmash. 32 no.12:37
D '62.   (MIRA 16:3)
(Hinges)   (Cutting machines)

NOVIKOV, A.B.; SOLOV'YEV, N.A.; FOTEMKIN, N.A.

Pneumatic mandrel for gripping thin-walled parts. Avt.prom.
28 no.1:43 Ja '62.   (MIRA 15:2)

1. Yaroslavskiy motornyy zavod.
                            (Lathes)

SOLOV'YEV, N., inzh.

Modernizing the starting system of the auxiliary steering
device on "Rodina"-type motor ships. Rech. transp. 23 no.1:30
Ja '64.
(MIRA 18:11)

ORLOV, V.P., kand.sel'skokhoz.nauk. Prinimali uchastiye: AVROV, N.N.;
BASENKO, P.V.; VARLAMOV, D.A.; VASIL'YEV, I.I.; VLASOV, V.N.;
VYLEGZHANINA, V.A.; ZHIVET'YEV, V.G.; ZAVADSKIY, I.S.; ZALESSKIY,
Ye.Ya.; ZAKORYUKIN, D.S.; ISHCHENKO, I.N.; KACHIBAYA, I.D.; KISE-
LEV, Ye.S.; KOZHEVNIKOV, I.Z.; LISITSYN, V.I.; MESHCHERYAKOV, V.F.;
NYURIN-VERTSBERG, R.L.; PEREPELITSA, V.M.; RYABKOV, A.D.; SKURIKHIN,
I.P.; SOLOV'YEV, N.A.; YAS'KO, N.G.. GREBTSOV, P.P., red.; ZUBRILIHA,
Z.P., tekhn.red.

[Our farms in 1965] Nashi khoziaistva v 1965 godu. Moskva, Gos.
izd-vo sel'khoz.lit-ry, 1959. 230 p.   (MIRA 13:2)
                     (Agriculture)

POVOROZHENKO, V.V., professor, SOLOV'YAV, N.A., inzhener.

Twenty-fifth anniversary of the founding of the Moscow Institute
of Transportation Economics. Trudy MTEI no.3:3-17 '56.
(MIRA 10:6)

1. Nachal'nik Moskovskogo transportno-ekonomicheskogo instituta
(for Povorozhenko). 2. Sekretar' partbyuro Moskovskogo transportno-
ekonomicheskogo instituta (for Solov'yev).
(Moscow--Technical education)

SOLOV'YEV, N.A., aspirant.

Methods for determining the economic efficiency of the principal coal mixtures used for fuel in steam locomotives. Trudy MIBI no.7: 186-198 '57.

(MIRA 11:5)

(Locomotives--Fuel consumption)

SOLOV'YEV, L.I., inzhener.

Economic efficiency of using coal mixtures. Zhel.dor.transp. 39
no.8:62-64 Ag '57.   (MIRA 10:9)
                    (Locomotives--Fuel consumption)

SOLOV'YEV, N.A., kand. tekhn. nauk

Finishing of aluminum and aluminum alloy parts abroad. Avt. prom. 29 no.7:43-45 Jl '63.   (MIRA 16:8)

(Aluminum--Finishing)

SOLOV'YEV, N.A.

Mechanism of the biological action of a pulsed magnetic field.
Dokl. AN SSSR 149 no.2:438-441 Mr '63.   (MIRA 16:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut meditsinskikh
instrumentov i oborudovaniya Ministerstva Zdravookhraneniya SSSR.
Predstavleno akademikom V.N.Chernigovskim.
                       (MAGNETIC FIELDS—PHYSIOLOGICAL EFFECT)

KATINAS, G.S. (Leningrad); SOLOV'YEV, N.A. (Leningrad)

Manufacture of corrosion preparations. Biol. v shkole no.1:
73-75 Ja-F '63.   (MIRA 16:6)

(ANATOMY—AUDIO-VISUAL AIDS)

SHUBNIKOV, Aleksey Kuz'mich, doktor tekhn. nauk; ISTOMIN, Lev Ivanovich, inzh.; SOLOV'YEV, Nikolay Aleksandrovich, kand. tekhn. nauk; POPOV, Viktor Mikhaylovich, kand.tekhn. nauk; SRIBNYI, V.M., retsenzent; SAMUSEV, V.P., red. izd-va; SHAFETA, S.M., tekhn.red.

[Planning and linear programming of coal supplying]Planirovanie i lineinoe programmirovanie uglesnabzheniia. Pod obshchei red. A.K. Shubnikova. Kiev, Gostekhizdat USSR, 1962. 364 p. (MIRA 16:2)
(Coal)

POPOV, V.M.; ISTOMIN, L.I.; SOLOV'YEV, N.A.

Technical and economic effectiveness of the conversion of a foundry
boiler room from solid to gaseous fule. Trudy IGI 16:458-466 '61.
(MIRA 16:7)

(Boilers) (Gas, Natural)

SOLOV'YEV, N.A.

Possibilities of photostimulation in the system of reverse connection. Nov. med. tekh. no.2:118-126 '64.   (MIRA 18:11)

NOVIKOV, A.P.; SOLOV'YEV, N.A.

Resistance of the areas of optimum frequencies in electro-
stimulation of the neuromuscular apparatus. Nov. med. tekh.
no.2:127-131 '64.   (MIRA 18:11)

SOLOV'YEV, A.V.; SOLOV'YEV, N.A.; SOLODKINA, O.V.

Effect of total body irradiation on the secretory function of different areas of the stomach. Trudy Inst. fiziol. 6:509-513 '57. (MIRA 11:4)

1. Laboratoriya fiziologii i patologii pishchevareniya i krovoobra-shcheniya (zaveduyushchiy A.V. Solov'yev).
(X RAYS--PHYSIOLOGICAL EFFECT) (STOMACH--SECRETIONS)

SOLOV'YEV, N.A.

Effect of whole body X-ray irradiation on the cholagogic function
of the liver. Nauch. soob. Inst. fiziol. AN SSSR no.1:175-176 '59.
(MIRA 14:10)

1. Laboratoriya fiziologii pishchevareniya (zav. A.V. Solov'yev)
Instituta fiziologii imeni Pavlova AN SSSR.
        (X RAYS—PHYSIOLOGICAL EFFECT)   (BILE)

S/194/61/000/006/045/077
D201/D302

AUTHORS: Livshits, B.N. and Solov'yev, N.A.

TITLE: Recording devices in electromedical diagnostic equipment

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1961, 5, abstract 6 E26 (Elektronika v meditsine, M-L, Gosenergoizdat, 1960, 130-136)

TEXT: The advantages are shown of fast-operating recorders with direct writing. Technical data are given of a polarized pen recorder ЧПГ (ChPG) designed at the VNII MIiO. The non-uniformity of frequency response within the range 0-120 c/s is 1 db, the amplitude response is linear within ± 15 mm with an error of 5%. A survey of other methods of direct recording is given: Electro-graphical, jet-recording (mingo-graphical) with electrostatic control, etc. /Abstracter's note: Complete translation_/

Card 1/1

KLIMOV, P.K.; POPOV, M.M.; SOLOV'YEV, N.A.

Motor function of the gall bladder in intravenous cholegraphy.
Trudy Inst. fiziol. 9:82-86 '60.
(MIRA 14:3)

1. Laboratoriya nevrofiziologicheskikh problem (zaveduyushchiy -
K.M.Bykov [deceased]) i laboratoriya fiziologii pishchevareniya
(zaveduyushchiy - A.V.Solov'yev) Instituta fiziologii im.I.P.Pavlova.
(GALL BLADDER—RADIOGRAPHY)

KLIMOV, P.K.; POPOV, M.M.; SOLOV'YEV, N.A.

Motor function of the gall bladder in acute radiation sickness
(radiographic investigation). Trudy Inst. fiziol. 9:232-23$ '60.
                                                    (MIRA 14:3)
1. Laboratoriya nevrofiziologicheskikh problem (zaveduyushchiy –
K.M.Bykov [deceased]) i Laboratoriya fiziologii pishchevareniya
(zaveduyushchiy – A.V.Solov'yev) Instituta fiziologii im. I.P.Pavlova.
                (GALL BLADDER—RADIOGRAPHY)
                (RADIATION SICKNESS)

SOLOV'YEV, N.A.

Influence of total-body roentgen irradiation on bile secretion.
Trudy Inst. fiziol. 9:249-253 '60.   (MIRA 14:3)

1. Laboratoriya fiziologii pishchevareniya (zaveduyushchiy — A.V.
Solov'yev) Instituta fiziologii im. I.P.Pavlova.
          (X RAYS—PHYSIOLOGICAL EFFECT)   (BILE)

PETROVSKIY, B.V.; YEFUNI, S.N.; RABINOVICH, N.I.; SOLOV'YEV, N.A.

Use of electroencephalography in general anesthesia. Med.prom.
14 no.6:14-21 Je '60. (MIRA 13:6)

1. I Moskovskiy meditsinskiy institut i Vsesoyuznyy nauchno-
issledovatel'skiy institut meditsinskogo instrumentariya i
oborudovaniya.
(ELECTROENCEPHALOGRAPHY) (ANESTHESIA)

MIC??, . .

Dissertation: "Investigation of the Effect of Minor Additions of Titanium on the Properties of Zinc Alumin." Cand Tech Sci, All-Union Correspondence Polytechnic Inst, 19 Apr 54. (Vechernyaya Moskva, Moscow, 9 Apr 54)

W: SUM 243, 15 Oct 1954

SOLOV'YEV N H

Electrodeposition of lead-tin-zinc alloys. N. A. Solov'ev. *J. Appl. Chem. U.S.S.R.* 27, 1199-1203(1954)(Engl. translation).—See C.A. 49, 04086. B M. R.

SCLOV'YEV, N.A.

USSR

Electrodeposition of lead-tin-zinc alloys. N. A. Solov'ev (Automobile Factory, Yaroslavl). *Zhur. Priklad. Khim.* **27**, 1265-8(1954).—A stable protective Pb-Sn -Zn coating on Fe plates, applied by electrodeposition from solns. of HBF₄ salts, was developed. Numerous expts. on the effect of c.d., electrolyte compn., free acid concn., and the presence of clays on the protective quality of the deposited films and on the uniformity of deposition led to the conclusion that the best film contained Pb 91–93.4, Sn 6–8, Zn 0.5–1%. A film thickness of 5 μ was sufficient for such parts as bushings; for bearings 3 μ was sufficient. The film was obtained with a c.d. of 0.75 amp./sq. dm. at room temp. with an anode of Pb 91.25, Sn 8, and Zn 0.75% from a soln. contg. Pb 25–40, Sn 4–6, Zn 0.2–0.4, and free HBF₄ 45–81 g./l. After more than 5 years' application, on an industrial scale, the method (patented) was changed but little.
                                        I. Bercowitz

SOLOV'YEV, N., kandidat tekhnicheskikh nauk.

Copper plating steel parts in a pyrophosphate electrolyte. Avt.
transp. 32 no.8:21-22 Ag '54.   (MLRA 7:11)
          (Copper plating)

SOLOV'YEV, N. A.

Chromium plating piston rings made of nodulized iron.
N. A. Solov'ev. *Vestnik Mashinostroeniya* 35, No. 7, 75-7
(1955).—After degreasing, rings are pickled in cold 3%
HF, washed and suspended in a bath of CrO_3 150-200 g. and
1.5-2.0 ml. H_2SO_4 per l. held at 51-54°. For the first 10
sec. they are anodically etched at 20 amp./sq. dm., then
plated at 50-55 amp./sq. dm. for 2-3 min. followed by 2-2
min. to 30-35 amp./sq. dm. Plated rings are honed and
then rendered porous by anodic etching in the plating bath
at 30-35 amp./sq. dm. for 5 min. Then the rings are elec-
trocleaned and plated with a 5-10-μ layer of an antifriction
metal.
                                        J. D. Gat

AID P - 4263

Subject   : USSR/Engineering

Card 1/1   Pub. 128 - 21/33

Author   : Solov'yev, N. A., Kand. Tech. Sci.

Title   : Coating with an alloy consisting of lead, tin and zinc

Periodical : Vest. mash., #1, p. 59-62, Ja 1956

Abstract   : As a protective anti-corrosive coating for those motor
               parts which are subjected to the action of organic oxides
               and Diesel fuels at high temperatures, the Yaroslavl'
               Automobile Plant, uses for plating instead of tin or
               cadmium plating, a special alloy, namely: 91-93.5% Pb,
               6-8% Sn, 0.5-1% Zn. This method of plating is outlined
               in detail. 4 references, 1940-1953.

Institution : None

Submitted   : No date

SOLOVIEV, N. A.

Effect of Small Additions of Titanium and Vanadium on the Properties [illegible] Beryllium, N. A. Soloviev [illegible]

[illegible text]

[illegible text]

[illegible text]

SOLOV'YEV. N A

5
1. 4E2c.

Anti-corrosive treatment for iron sheets. N. A. SOLOV'EV (*J.A. prikt. Khim.*, 1956, 29, 1062—1066).—Thin iron sheets were first galvanised in acid and alkaline electrolytes to a depth of 10 μ, then oxidised with CrO_3 (100—150), H_2SO_4 (1—2) and HCl (100—150 g.) in water (approx. 1 l.) with temp. of solution 18—20° and time 5—10 sec. In these conditions the film remained yellowish and bright and gave good anti-corrosive qualities: after >15 sec. it became porous, the anti-corrosive quality decreased and the colour became dark bronze. The method could be used for decorative purposes. Articles thus treated exhibited 8—10 times more corrosion resistance than similar galvanized articles without treatment.   A. L. B.
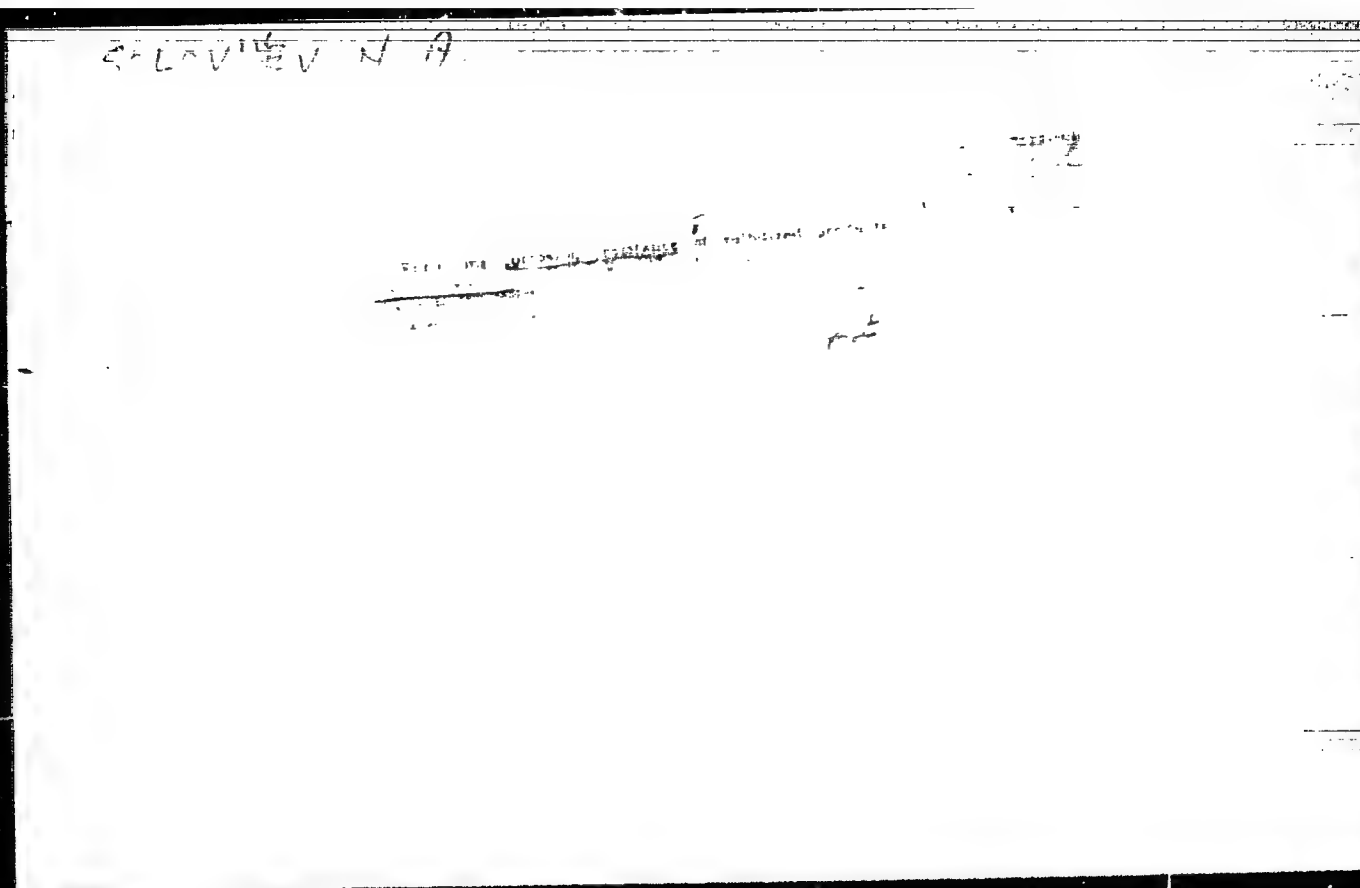
SOLOV'YEV, N. A.

7

Bearing inserts and bimetallic bushings having an anti-friction surface. N. A. Solov'ev. C S S R 104,13. Feb. 25 19... The antifriction surface is secured by electrodeposition of an alloy of Pb with Sn, Sb and Cu.

M. Hush

SOLOV'YEV, N.A.

SOLOV'YEV, N.A., kandidat tekhnicheskikh nauk.;GORBENKO, A.A., inzhener.

Anticorrosive treatment of zinc plated parts. Metalloved. i obr.
met. no.2:54-58 F '57.   (MIRA 10:4)

1. Yaroslavskiy elektromekhanicheskiy zavod (YaEMZ)
        (Zinc plating) (Oxidation)

136-12-14/18

AUTHORS: Solov'yev, N.A., Broydo, A.S., and Pogodin-Alekseyev, G.I.

TITLE: Effect of Mould Form on the Crystallization of Chromium Bronze Ingots (Vliyaniye formy izlozhnitsy na kristallizatsiyu slitkov khromistoy bronzy)

PERIODICAL: Tsvetnyye Metally, 1957, no.12, pp. 71-74 (USSR)

ABSTRACT: The authors outline effects (ingot porosity and chromium segregation) which led to difficulties at the "Krasnyy Vyborzhets" Works when making sheets of type $Бр$ X0,8 chromium bronze (0.5 - 0.9% Cr). They describe their laboratory experiments with 100-kg ingots cast in models of the works ingot moulds. The alloy was deoxidised with lithium and poured at about 1 200 °C. Three types of ingot mould, each type being cooled in several ways were used. The macro-structures of the ingots and chromium distribution were determined, the best results being obtained with a flat, horizontal mould with insulated walls and a heated top. This was confirmed by I.Ye. Sharov, Ya.F. Shabashov and N.N. Postnikov on 1 750-kg ingots at the "Krasnyy Vyborzhets" Works. Works data showed that with this type of mould, the yield in ingots was 80 and in sheet 50% of the charge weight, the corresponding figures for cylindrical moulds being 62-64 and 20-25%. The other ingot moulds used in the laboratory work were vertical cylindrical.

Card 1/2

SOLOV'YEV, N.A.

Anticorrosive treatment of zinc platings. Zhur.prikl.khim.
29 no.7:1062-1066 Jl '57.   (MIRA 10:10)

1.Yaroslavskiy avtomobil'nyy zavod.
         (Zinc plating)   (Corrosion and anticorrosives)

SOLOV'YEV, N.A., kand. tekhn. nauk.

Development of the nickel plating process without using electric
current. Vest. mash. 38 no.3:82-84 Mr '58.   (MIRA 11:2)
                              (Nickel plating)

5(2)   SOV/80-32-3-17/43

AUTHOR: Solov'yev, N.A.

TITLE: The Study of the Process of Nickel-Plating Without Application
             of Current With a Poiser of Ammonium Fluoride (Issledovaniye
             protsessa nikelirovaniya bez nalozheniya toka s buferom iz
             ftoristogo ammoniya)

ABSTRACT: The chemical nickel-plating, i.e., without electrical current,
             is a relatively new process. The effect of the composition of
             the solution on the thickness, hardness and porosity, etc, of
             the layer is investigated here. If a poiser of ammonium fluo-
             ride is used, the thickness of the precipitated nickel layer is
             12.5 μ within 3 hours at a temperature of 50 - 55°C. The
             porosity is dense. At a temperature of 70 - 75°C the thick-
             ness is 12.4 μ within 1 hour and there are only 19 poros on
             7.5 cm^2. The highest growth rate of 33.6 μ per hour of pre-
             cipitation is obtained at an ammonium fluoride concentration
             of 15 g/l. The microhardness increases with the concentration
Card 1/2   of ammonium fluoride. Its highest value is 604 kg/mm^2. If

SOV/80-32-3-17/43

The Study of the Process of Nickel-Plating Without Application of Current
With a Poiser of Ammonium Fluoride

sodium hypophosphite at a concentration of more than 15 g/l is
used, the microhardness varies between 635 - 707 kg/mm^2. The
highest rate of layer growth is reached at a concentration of
30 - 35 g/l. The shining covers have a higher wear-resistance
under chemical stresses than dull covers. Vagramyan is
mentioned in the text.
There are 5 tables and 11 references, 6 of which are Soviet
and 5 English.

SUBMITTED: July 5, 1957

Card 2/2

SOV/122-59-2-25/34

AUTHOR: Solov'yev, N.A., Candidate c Technical Sciences, Docent

TITLE: Smoothing of Rough Metal Surfaces by Galvanic Copper
            and Nickel Plating (Sglazhivaniye poverkhnosti chernykh
            metallov gal'vanicheskim medneniyem i nikelirovaniyem)

ABSTRACT: The different methods of measuring the degree of
            smoothing by copper or nickel deposition are discussed;
            the preferred method being the relationship of the
            thickness of the deposit at the centre of the hollows to
            that at the crowns of the surface, h_3/h_1 in Fig 1b.
            This ratio should obviously be much greater than unity
            for effective smoothing. This requires a greater degree
            of polarisation at the crowns than in the hollows. With
            increased concentration of metal salts in the electrolyte,
            deposition is greater in the hollows and the smoothing
            effect is improved. Using an electrolyte: $NiSO_4 \cdot 7H_2O$
            250 g/l, $NiCl_2 \cdot 6H_2O$ 37.5 g/l, H_2BO_3 25 g/l, with
            pH = 4.0 at 55°C with cathodic current density 2 amps/dc^2
            for a duration of 15 min, it was found that addition of
            thiourea to the electrolyte in proportion of 0.1 to

Card 1/3   0.2 g/l gave a h_3/h_1 ratio of 1.77; with addition of

SOV/122-59-2-25/34

Smoothing of Rough Metal Surfaces by Galvanic Copper and Nickel
Plating

diethylthiourea this factor was as high as 3.67 and
additions of acetylene compounds gave h_3/h_1 up to 3.3.
In nickel plating the rate of smoothing decreases
rapidly with electrolyte pH less than 3 but increases
with lower current densities (to 1 amp/dm2) and with
higher temperatures (to 77°C). Maximum smoothing effect
was found where the angle of the hollows approximates to
90° and with depth about 0.5 mm, the smoothing effect
ceases virtually when the angle of the depressions
becomes 167°. Distance from anode to cathode and
disposition of the depressions has little effect. With
a two stage process, a first smoothing layer 25 microns
thickness of semi-bright nickel should be followed with
a final layer 5 microns thickness of normal bright metal.
This gives maximum corrosion resistance. The following
nickel electrolyte is recommended for the semi-bright
smoothing stage: nickel sulphate 120-140 g/l, nickel
chloride 15-60 g/l, boric acid 30-40 g/l, formic
Card 2/3 acid 5-30 g/l, cumarin 1 g/l. Temperature 60 to 80°C,

SOV/122-5)-2-25/34

Smoothing of Rough Metal Surfaces by Galvanic Copper and Nickel
Plating

cathodic current density 4 to 6 amps/dm^2. A sulfamine
nickel electrolyte composition is also described which
gives hard and highly corrosion-resistant smooth
surfaces. In some cases the use of these processes
can eliminate preliminary grinding or polishing of the
parts before plating as well as reduction or elimination
of final polishing or buffing after plating and thus
enable substantial economies to be made in production.
There is 1 figure and 16 references, 2 of which are
Soviet and 14 English.

Card 3/3

18.7400

77167
SOV/129-60-1-15/22

AUTHOR: Solov'yev, N. A. (Candidate of Technical Sciences)

TITLE: Sulfur Saturation of the Surface of Ferrous Metal
             Parts in Hydrogen-Sulfide-Hydrosulfide Solutions

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov,
             1960, Nr 1, pp 47-48 (USSR)

ABSTRACT: The author investigates the possibilities of sulfuriza-
             tion of parts in aqueous solutions of sulfurous salts
             at temperatues up to 100° C (Author's Certificate
             Nr 107073). A hydrogen-sulfide-hydrosulfide solution
             used for this purpose contains 2.3 g/l sodium bicarbonate,
             0.7 g/l sodium sulfide, and 1 g/l commercial hydro-
             chloric acid. Degreased and pre-pickled specimens were
             immersed in the solution of 20° C. The temperature of
             the solution increased to 100° C within 90 min and was
             maintained for 30 min. The specimens were washed in
             hot water and dried in an electric oven. Friction tests
Card 1/2   of the three sulfidized specimens of steel 45 were

Sulfur Saturation of the Surface of Ferrous   77167
Metal Parts in Hydrogen-Sulfide-Hydrosul-   SOV/129-60-1-15/22
fide Solutions

conducted under the directives of Minsk Automobile
Plant (Minskiy avtozavod) on a lathe, at 450 spindle
rpm pressing a piece of R18 high speed steel (Rockwell
hardness R_c = 61-63) against the rotating component.
The author found that sulfur saturation of ferrous
metal surfaces in hydrogen sulfide-hydrosulfuric
aqueous solution, with subsequent formation of a
surface film in 5% aqueous bichromate solution, as
well as lubrication, prevents seizing and jamming
of components in friction and enhances corrosion
resistance. The described method of sulfidizing has
technical and economical advantages over analogous
treatment in molten salts at high temperatures and
is recommended for the treatment of ferrous metals.
There are 4 Soviet references.

Card 2/2

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(MIRA 13:10)

(Electroplating)   (Heat-resistant alloys)

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Electroplating by means of the rubbing method. Vest.mashinostr.
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Electric stimulation as recorded from the motor point and the nerve (in health and under the influence of some pharmacological agents). Trudy VNIIMIO no.3:171-175 '63   (MIRA 18:2)

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no.9:333-335 '63.   (MIRA 17:10)

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A handbook on preliminary cotton processing. Moskva, Gos. nauchno-tekhn. izd-vo legkoi promyshl., 1949. 266 p. (50-57756)

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RODICHEV, S.D.; MERKIN,.I.B.; MILOKHOV, N.I.; POPELLO, A.P.; SOLOV'YEV,
         N.D.; SHEMSHURIN, N.A.; SORKIN, N.B., retsenzent; SMIRNOV,.I.I.,
         retsenzent; ANDREYEV, Yu.I., retsenzent; BRAVYY, Z.A., retsenzent;
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         [Handbook on the primary processing of cotton] Spravochnik po
         pervichnoi obrabotke khlopka. Moskva, Gos.nauchno-tekhn.izd-vo
         lit-ry po legkoi promyshl., 1959. 687 p.   (MIRA 13:4)
               (Cotton gins and ginning)

86684

9.1200

AUTHORS: Solov'yev, N. D., Engineer, Furnika, A. S., Engineer

TITLE: Modernization of the ШАУ-51С (ShAU-51S) Antenna Amplifier

PERIODICAL: Vestnik svyazi, 1960, No. 12, pp. 4 - 7

TEXT: The resonance amplifiers were replaced by aperiodic amplifiers in order to improve the reception of the antenna amplifier ShAU-51S. The distributors and the control panel were improved by replacing some elements. A circuit which permits control of the amplifier tube and the operation of the antenna was installed additionally. With this diagram the resistances of line and antenna relative to earth may also be controlled. The modernized version is designated ШАУ-59С (ShAU-59S). The amplifier operates in a two-cycle circuit with 636ЛE (6E6PYe) tubes which have a high linearity; it is intended for use in the frequency range of 3.5-24 megacycles. A transformer with two toroidal cores is used as input, having the highest possible transmission coefficient in order to prevent noise as far as possible. The reflection coefficient of the input transformer is no more than 0.25 in the frequency range up

Card 1/4

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Modernization of the ШAУ-51C (ShAU-51S)   S/111/60/000/012/001/004
Antenna Amplifier   BO19/BO58

to 18 megacycles, and no more than 0.4 up to 24 megacycles. A similar
transformer was described by Yu. M. Lebedev-Krasin in the periodical
"Radiotekhnika" (1957, No. 9). Fig.1 shows the amplifier diagram. Power
supply, pilot and control circuits are also discussed. The new antenna
amplifier allows up to 120 receivers to be connected in the frequency
range of 3.5-30 megacycles, while with the old one a connection of only
80 receivers was possible in the frequency range of 4.3-24 megacycles.
The new amplifier shows good linearity and reflection. The reliability
of the amplifier has also been improved. There are 7 figures.
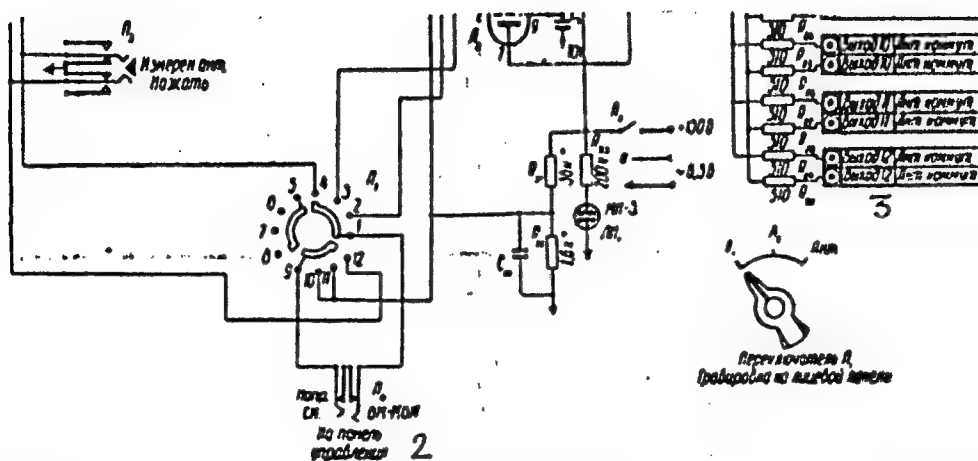
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B019/B058

Legend to Fig.1: 1) Antenna; 2) To the control panel; 3) Output
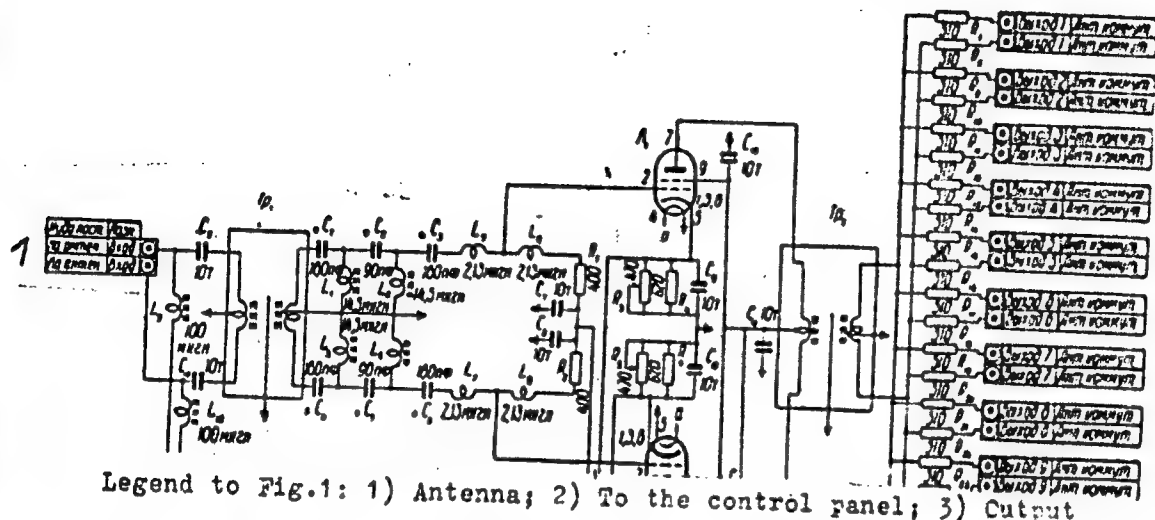
Card 3/4

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B019/B058

Card 4/4

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KHOKHLOV, Igor' Ivanovich [deceased]; IVANOV, S.P., kand.
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[Linting of cottonseeds] Linterovanie khlopkovykh semian.
Moskva, Gizlegprom, 1963. 268 p.   (MIRA 16:9)
            (Linters) (Cottonseed)

ROGANOV, Boris Ivanovich, doktor tekhn. nauk [deceased]; DZHABAROV,
Gafar Dzhabarovich, kand. tekhn. nauk; KOTOV, Dmitriy
Andreyevich, kand. tekhn.nauk; BALTABAYEV, Sultan Dusayevich,
kand. tekhn. nauk; SOLOV'YEV, Nikolay Dmitriyevich, inzh.;
DORMAN, I.M., retsenzent; DUKHOVNYY, F.N., red.; SOKOLOVA,
V.Ye., red.

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AUTHOR   SOLOV'YEV, N.F.,Engineer-Colonel (Leningrad)
TITLE   A.P.Davylov's Automatic Instruments and Computors.
           (Avtomticheskiye i schetno-reshayushchiye pribory A.P.Davydova - Russian)
PERICDICAL Elektrichestvo, 1957,   Nr 6, pp 77 - 8o (U.S.S.R.)

ABSTRACT   One of the first Russian inventors in the sphere of ship's electrical au-
            tomatic tuning means was Aleksey Pavlovich Davidov (1826 - 1904). Between
            186o and 187o a mine, constructed by him was used to fit out the navy qui-
            te as in 1863 his mine relais. Be also invented a system, with the aid of
            which naval artillery was able to fire automatically. This system was used
            in the Russian navy from 1865 to 1896. Because Davidov destroyed all his
            drawings and sketches for reasons of military security none of his inven-
            tions or plans could be found.In this paper a short reconstruction of his
            inventions is given.The first is the heeling-meter, which was submitted in
            187o and was improved by him later on. The redesign of the heeling-meter ca-
            me into use in 19o1 but now it was fitted out with a motor. Also the recon-
            structions of the computers are given,with the aid of which it was possible
            to direct concentric fire to invisible targets. Furthermore,the computation
            mechanism,the so-called galvanic indicatro,which was fixed on the central
            telescoping-sight, is described here. (4 fig. and 8 citations)

ASSOCIATION Not Given.
PRESENTED BY
SUBMITTED   19.2.1957
AVAILABLE   Library of Congress.
Card 1/1

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skva, Timiriazevskaia sel'skokhoziaistvennaia akad., 1956. 60 p.
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